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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,626

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EXAMINER

COHEN, JODI F

ART UNIT

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1791

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,626	Applicant(s) DE MARIA, MASSIMO	
	Examiner Jodi Cohen	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/04/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-33 and 43-51 is/are pending in the application.
- 4a) Of the above claim(s) 22-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 46 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 46 is rendered indefinite because it contains the limitation, “the mixer has a plurality of channels that are arranged substantially parallel to an axial direction” and it is unclear what axis defines the “axial direction”. Furthermore, claim 46 contains the limitation, “a useful upstream cross-section for feeding the material” it is unclear what the applicant is referring to. For the purpose of this examination it will be assumed that the mixer has a plurality of channels that are arranged perpendicular to the longitudinal axis of the cylindrical body (5).

Claim Rejections - 35 USC § 102

3. Claims 34-42 have been cancelled thus rejections of claims 34-39 and 41-42 under 35 U.S.C. 102(b) as being anticipated by Matsumoto (EP 0439625) are withdrawn.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 43, 47, 48 and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Therolf (US 6,238,733) (herein after '733).

Regarding claim 43, '733 discloses an apparatus (1) for producing fiber-reinforced polymer compositions said apparatus comprising;

a substantially cylindrical body (25) having an inner chamber extending from a hopper (19), or feeder of a thermoplastic resin, to an extrusion head (8), with a feeder for delivering fibers (14) and capable of delivering other fillers arranged between said feeder of thermoplastic resin and said extrusion head;

an extrusion screw (Fig 2) rotatably disposed inside the substantially cylindrical body to define a first portion (O) of said inner chamber arranged downstream of the feeder of thermoplastic resin, and a second portion (m, n) of said inner chamber arranged downstream of said first portion, where the feeder of the fiber exists; and

a polymer feed (28), or injection channel, between the first portion of the inner chamber and an end portion of the feeder of the at least one of the mineral and the fiber feed into the second portion of the inner chamber; wherein the feed channel mixes the fiber and melted thermoplastic before introduction into the second portion of the inner chamber. (Col 3; line 22- Col 4; line 65)

Regarding claim 47, '733 discloses an apparatus for producing fiber-reinforced polymer compositions, wherein an inlet channel exists for providing thermoplastic polymer coating to the fibers before introduction into the main part of the extruder.

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Reference '733 also discloses an alternative embodiment wherein the coating of the fibers may be with a prepared polymer provided by a separate auxiliary plasticating extruder (Col 4; lines 51-65) which is considered an auxiliary inlet for introducing a second thermoplastic resin.

Regarding claim 48, '733 discloses a profile head at an outlet of said extrusion head (8) for obtaining finished articles (See Fig 2).

Regarding claim 51, '733 discloses a rounded extruder head (8) head and a cutting device (32) disposed outside of the head, wherein the apparatus is considered capable of producing granules by operating the cutting device at small intervals.

Claim Rejections - 35 USC § 103

6. Claims 34-42 have been cancelled thus rejection of Claim 40 under 35 U.S.C. 103(a) as being unpatentable over Matsumoto (EP 0439625) further in view of Enlow (US 6254712) is withdrawn.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 44 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Therolf (US 6,238,733) as applied to claim 43 above and further in view of Matsumoto (EP 0439625) (previously on record and referred to as '625 herein after).

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Regarding claims 44, '733 discloses an apparatus for producing fiber-reinforced polymer compositions, however '733 does not disclose the second portion of the inner chamber forms a high compression region, followed by a vacuum region.

'625 discloses a plasticator, or extruder, (Fig. 5) with a feed (8) or hopper for supplying thermoplastic resin to an extrusion screw (11), wherein there is a second feed (9) for supplying a fiber material, at the end of a first part of the extrusion screw and second part of the extrusion screw comprises a high compression region and a vacuum region created by a vacuum pump connected to a downstream vent for removing excess air from the mixture and homogenously mixing the fibers within the thermoplastic material, wherein the vacuum region contains screw (11), which is considered a mixer (page 3; lines 31-44, Page 5; line 1-16). Thus it would have been obvious to one of ordinary skill in the art to provide a compression region and vacuum region within the apparatus disclosed by '733 so that excess air within the thermoplastic mixture resulting from the incorporation of fibers or fillers. may be removed and provide a more homogenous mixture of fiber reinforced thermoplastic material.

Regarding claim 50, '733 discloses an apparatus for producing fiber-reinforced polymer compositions, wherein the final composition is disposed on a conveyor for further processing, however '733 is silent about further processing of the fiber-reinforced composition. Reference '625 discloses an extruder further comprising a press with molds which must be disposed downstream of the extrusion head for forming manufactured articles from the composition exiting said extrusion head (Fig 8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included press molds in order to obtain a finished article in any desired shape from the composition made by the extruder apparatus.

9. Claims 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Therolf (US 6,238,733) as applied to claim 43 above, and further in view of Upmeier (US 3,719,351) ('351 herein after).

Regarding claims 45-46, reference '733 discloses an apparatus for producing fiber-reinforced polymer compositions comprising a cylindrical body (5), containing an extrusion screw within for thoroughly incorporating fibers within a thermoplastic material and is thus considered a mixer; however '733 does not specifically disclose a mixer with a plurality of channels arranged perpendicular to the longitudinal axis of the cylindrical body (5).

Reference '351 discloses a feed screw (Fig 1) to rotate within a cylinder of an extruder comprising a shearing and homogenizing section (B), wherein shearing and homogenizing are each considered to be forms of mixing. Furthermore, the shearing and homogenizing section is made up of a multi-ribbed ring wherein the ribs, and thus channels created between said ribs, are arranged perpendicular to the longitudinal axis of the screw (Col 2; lines 55-60). It would have been obvious to one of ordinary skill in the art to substitute the extrusion screw in the apparatus of '733 with the extrusion screw disclosed by '351 in order to obtain additional shearing and homogenizing of the fibers and thermoplastic material as '351 teaches is provided by section (B).

10. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Therolf (US 6,238,733) as applied to claim 43 above, and further in view of Enlow (US 6,254,712) (herein after '712).

Regarding claim 49, reference '733 discloses an apparatus for producing fiber-reinforced polymer compositions, wherein the final composition is disposed on a conveyor for further processing, however '733 is silent about further processing of the fiber-reinforced composition.

'712 discloses a twin screw extruder with calendar rollers downstream of the extrusion head (Fig 8) for making a sheet of material. Therefore it would have been obvious to one of ordinary skill in the art to have included the calendar rollers in order to produce a sheet of extruded material.

Response to Arguments

11. Applicant's arguments with respect to claim 43 and prior art Matsumoto (EP 0439625) have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hasson et al. (US 5,102,591) - discloses an extruder comprising two feed ports for two separate thermoplastic resins wherein the second feed port exists downstream of the first feed port and prior to a vacuum section. '591 teaches this second feed port

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for providing a second thermoplastic resin for removing specific impurities from the thermoplastic mixture (Col 2; lines 13-51, Fig 1).

Sutton et al. (WO 2004/035295) - discloses extruder with two thermoplastic feeds and two potential fiber feeds, as well as importance of keeping fibers at a desired temperature for proper incorporation into the thermoplastic without disrupting the viscosity.

Mewes et al. (US 4,616,989) – teaches an extruder with preheating fibers and resin separately, intermixing before introducing to a second chamber for degasifying and compression.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jodi Cohen whose telephone number is 571-270-3966. The examiner can normally be reached on Monday-Friday 7:00am-5:00pm Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jodi F. Cohen/
Examiner, Art Unit 1791

/Carlos Lopez/
Primary Examiner, Art Unit 1791